02/10/14 Agenda:

- Warm Up Problem

- Turn in any late work!

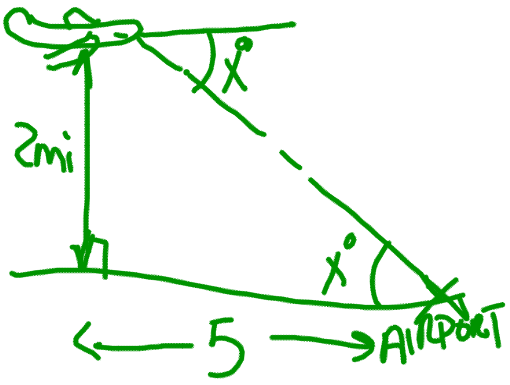
- Review Homework
    - A Bunch of Triangles
    - Worksheet 10 - Trig Word Problems

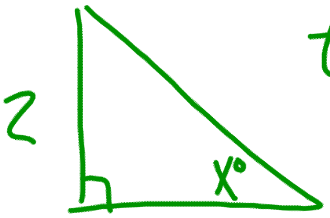
- Review - Sections 7.1 - 7.7

- Homework
    - Review Packet
        - Review tomorrow
        - collected Wednesday before the test

Warm Up - Homework Out!

An airplane is flying at a height of 2 miles above the ground. The distance along the ground from the airplane to the airport is 5 miles. What is the angle of depression from the airplane to the airport?





$\tan^{-1}\left(\frac{2}{5}\right) = x°$

$21.8°$

Unit Review: Sections 7.1 - 7.7 Test WEDNESDAY!!!

7.1 - Apply The Pythagorean Theorem *Target 7A*

- The Pythagorean Theorem
- Pythagorean Triples & Their Multiples

7.2 - Converse of The Pythagorean Theorem *Target 7A*

- Converse of The Pythagorean Theorem
- Pythagorean Inequalities
  - Classify Triangles as acute, right, or obtuse

7.4 - Special Right Triangles *Target 7B*

- 45-45-90 Triangles
  - Legs Congruent
  - Hypotenuse = Length of Leg * $\sqrt{2}$
- 30-60-90 Triangle
  - Half an Equilateral Triangle
  - Long Leg = Length of Short Leg * $\sqrt{3}$
  - Hypotenuse = Length of Short Leg * 2

Unit Review: Sections 7.1 - 7.7 **Test WEDNESDAY!!!**

7.5-7.6 Apply Trig Ratios ***Targets 7C & 7D***

- Definitions of
  - Hypotenuse
  - Opposite
  - Adjacent
  - Angle of Elevation
  - Angle of Depression

- Sine: $\sin\theta = \dfrac{opposite}{hypotenuse}$

- Cosine: $\cos\theta = \dfrac{adjacent}{hypotenuse}$

- Tangent: $\tan\theta = \dfrac{opposite}{adjacent}$

7.7 - Use Inverse Trig Functions ***Target 7E***

- Sine: $\sin^{-1}\left(\dfrac{opposite}{hypotenuse}\right) = m\angle\theta$

- Cosine: $\cos^{-1}\left(\dfrac{adjacent}{hypotenuse}\right) = m\angle\theta$

- Tangent: $\tan^{-1}\left(\dfrac{opposite}{adjacent}\right) = m\angle\theta$

Unit Review: Sections 7.1 - 7.7 Test WEDNESDAY!!!

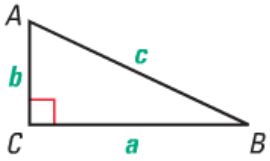
BIG IDEAS

For Your Notebook

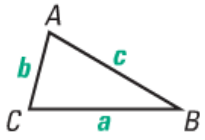
Using the Pythagorean Theorem and Its Converse

The Pythagorean Theorem states that in a right triangle the square of the length of the hypotenuse c is equal to the sum of the squares of the lengths of the legs a and b, so that $c^2 = a^2 + b^2$.

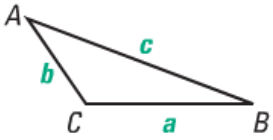
The Converse of the Pythagorean Theorem can be used to determine if a triangle is a right triangle.



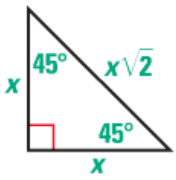
If $c^2 = a^2 + b^2$, then $m\angle C = 90°$ and $\triangle ABC$ is a right triangle.



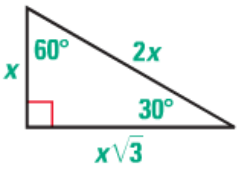
If $c^2 < a^2 + b^2$, then $m\angle C < 90°$ and $\triangle ABC$ is an acute triangle.



If $c^2 > a^2 + b^2$, then $m\angle C > 90°$ and $\triangle ABC$ is an obtuse triangle.



hypotenuse = leg • $\sqrt{2}$



hypotenuse = 2 • shorter leg

longer leg = shorter leg • $\sqrt{3}$

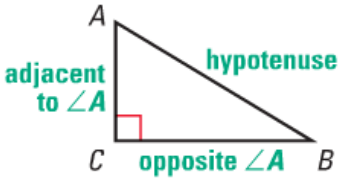
Using Trigonometric Ratios to Solve Right Triangles

The tangent, sine, and cosine ratios can be used to find unknown side lengths and angle measures of right triangles. The values of $\tan x°$, $\sin x°$, and $\cos x°$ depend only on the angle measure and not on the side length.

$$\tan A = \frac{\text{opp.}}{\text{adj.}} = \frac{BC}{AC} \qquad \tan^{-1}\frac{BC}{AC} = m\angle A$$

$$\sin A = \frac{\text{opp.}}{\text{hyp.}} = \frac{BC}{AB} \qquad \sin^{-1}\frac{BC}{AB} = m\angle A$$

$$\cos A = \frac{\text{adj.}}{\text{hyp.}} = \frac{AC}{AB} \qquad \cos^{-1}\frac{AC}{AB} = m\angle A$$



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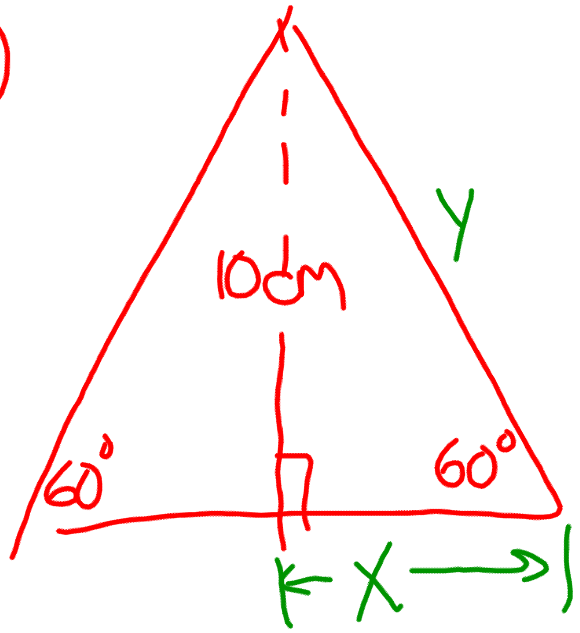

x =

y =